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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/387,480	09/01/1999	STEPHEN LARGHI	PAGE01-00149	2633
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			MARCELO, MELVIN C	
		ART UNIT	PAPER NUMBER	
		2663	7	

DATE MAILED: 01/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/387,480	LARGHI ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Melvin Marcelo	2663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 01 September 1999.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-40 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 01 September 1999 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. §§ 119 and 120

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) All b) Some \* c) None of:  
1. Certified copies of the priority documents have been received.  
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) The translation of the foreign language provisional application has been received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)                    4) Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.  
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)                    5) Notice of Informal Patent Application (PTO-152)  
3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4,6.                    6) Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 21-31 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 21 recites "remotely analyzing said first data signal in accordance with said prescribed application task using at least one subscriber profile..." The 'analyzing' function occurs in the memory (325,425,525) associated with the first communication unit (124,123, 160) that additionally provides the function of "sensing change in a characteristic monitored at a first communication unit" and "causing, in response thereto, said first communication unit to transmit automatically a first data signal." The term "remotely" is interpreted to mean that the 'analyzing' function occurs at a significant distance from the first communication unit. However, neither the drawings or specification describes how the 'remotely analyzing' function occurs. The specification, page 8, line 23 to page 9, line 2, recites that "the functionality associated with any particular controller may be centralized or distributed, whether locally or remotely." It is the examiner's position that the above recitation is not sufficient enablement for the

feature of 'remotely analyzing' which occurs at a sufficient distance from the first communication unit since there is no description of locating the memory (325, 425, 525) away from the first communication unit.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 2, 4-12, 14-16, 21, 22, and 25-33, and 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deluca et al. (US 5754119 A) in view of applicant's admitted prior art.

Deluca teaches the two-way wireless messaging system (see below for the correspondence between the claimed limitations and Deluca), but is silent with respect to the feature of transmitting an acknowledgment signal to at least the first communication unit in response to automatically analyzing the second data signal at the second communication unit. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide such feature in view of Deluca's teachings that the pagers are of the type "Acknowledge Back Pager" which are compatible with the Motorola ReFlex protocol (column 4, lines 49-66) and applicant's admission that the Motorola ReFlex protocol provides automatic acknowledgment in the reverse channel to a received message (specification, page 13, lines 5-20). A skilled artisan would have been motivated to adopt features available in Deluca's system such

as the Acknowledgment Back Pager and ReFlex protocol in order to provide an acknowledgment to the first communication unit that the second communication unit has successfully received the second data signal, wherein the first communication unit transmitted the second data signal.

With respect to the claims below, references to Deluca appears in parenthesis.

1. For use with a two-way wireless messaging system, an application controller distributed, at least in part, among a plurality communication units associated with said two-way wireless messaging system (**Deluca's Figure 5, wherein an application controller is associated with the distributed functions in the User's Pager 1, Infrastructure and User's Pager N+1 in order to coordinate Deluca's process**), said application controller capable of controlling cooperative communication among ones of said plurality of communication units in accordance with a prescribed application task (**see Abstract**), said application controller comprising:

a first communication unit controller that senses change in a characteristic monitored at a first communication unit, said monitored characteristic evaluated in accordance with said prescribed application task, and, in response thereto, automatically causes said first communication unit to transmit a first data signal (**Figure 5, box 620 senses the changes in the monitored characteristics, box 630 automatically transmits the first data signal to box 635, and the first communication unit is User's Pager 1; see also column 7, lines 18-44**);

× an operations controller that analyzes said first data signal in accordance with said prescribed application task using at least one subscriber profile, and, in response thereto, causes a second data signal to be communicated automatically to

at least a second communication unit (**Figure 5, box 635, the second data signal is the “status change of pager” and the second communication unit is User’s Pager N+1; and see also column 7, line 45 to column 8, line 7**); and

a second communication unit controller that automatically analyzes said second data signal at said second communication unit, and, in response thereto, transmits an acknowledgment signal to at least said first communication unit (**Figure 5, box 665 and 675, wherein transmitting an acknowledgment would have been obvious since the pagers are acknowledge back pagers compatible with the Motorola ReFlex Protocol**).

2. The application controller set forth in Claim 1 wherein said two-way wireless messaging system includes at least one base station (**Figure 5, Infrastructure 510**) that communicates with at least one of said first communication unit (**User’s Pager 1**) and said second communication unit (**User’s Pager N+1**).

4. The application controller set forth in Claim 1 wherein said second data signal is communicated automatically to said second communication unit and at least a third communication unit (**Figure 5, User’s Pager N+1, wherein N is an integer that is 2 or more**).

5. The application controller set forth in Claim 4 wherein said second data signal is communicated concurrently to said second communication unit and said third communication unit (**Figure 5, Infrastructure 510 transmit the second data signal 655 concurrently to all of the pagers**).

6. The application controller set forth in Claim 4 wherein said second communication unit transmits said acknowledgment signal to said first communication unit and said third communication unit (**Deluca uses a group address for identifying all of the pagers with an additional field for identifying the source pager (column 5, lines 56-65 and lines 32-34), wherein an acknowledgment transmitted by the second**

**communication unit (User's Pager N+1) would have been transmitted to the group address).**

7. The application controller set forth in Claim 6 wherein said acknowledgment signal is transmitted concurrently to said first communication unit and said third communication unit (**Figure 5, Infrastructure 510 transmits concurrently to all of the pagers since the pagers have the same group address**).
8. The application controller set forth in Claim 1 wherein said prescribed application task is one of a calendering task, an environmental monitoring task, an automation task, and a security task (**application tasks includes calendaring, automation and security, column 7, lines 18-44**).
9. The application controller set forth in Claim 4 wherein said prescribed application task is one of a calendering task, an environmental monitoring task, an automation task, and a security task (**application tasks includes calendaring, automation and security, column 7, lines 18-44**).
10. The application controller set forth in Claim 1 wherein said operations controller is associated with a data repository that maintains said at least one subscriber profile (**memory in the pager includes the records which provide the subscriber profile, column 7, line 51 to column 8, line 7**).
11. For use with a two-way wireless messaging system, an application controller distributed among at least three communication units associated with said two-way wireless messaging system (**Deluca's Figure 5, wherein an application controller is associated with the distributed functions in the User's Pager 1, Infrastructure and User's Pager N+1 in order to coordinate Deluca's process**), said application controller capable of controlling cooperative communication among said at least three communication units in accordance with a prescribed application

task, said application controller comprising:

a first communication unit controller (**Figure 5, box 620, the first communication unit is User's Pager 1; see also column 7, lines 18-44**) that:

senses change in characteristics monitored at a first communication unit, said monitored characteristics evaluated in accordance with said prescribed application task (**box 620 monitors changes in various characteristics**), and causes automatically, in response to one of said monitored characteristics exceeding an associated ~~threshold~~, said first communication unit to transmit a first data signal (**the first data signal is output by box 630**);  
an operations controller that analyzes said first data signal in accordance with said prescribed application task using a subscriber profile, and, in response thereto, causes a second data signal to be communicated automatically to at least a second communication unit and a third communication unit (**Figure 5, box 635, the second communication unit and third communication unit are User's Pager N+1 where "N" is 2; and also column 7, line 45 to column 8, line 7**); and

a communication unit controller that automatically analyzes said second data signal at each of said second communication unit and said third communication unit, and, in response thereto, transmits an acknowledgment signal to at least said first communication unit (**Figure 5, box 665 and 675, wherein transmitting an acknowledgment would have been obvious since the pagers are acknowledge back pagers compatible with the Motorola ReFlex Protocol**).

12. The application controller set forth in Claim 11 wherein said two-way wireless messaging system includes at least one base station that communicates with at least one of said at least three communication units (**Figure 5, wherein N equals 2 for User's Pager N+1**).

14. The application controller set forth in Claim 11

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wherein said second data signal is communicated concurrently to said second communication unit and said third communication unit (**Figure 5, the second data signal 655 is communicated concurrently**).

15. The application controller set forth in Claim 11

wherein said second communication unit transmits said acknowledgment signal to said first communication unit and said third communication unit (**Deluca uses a group address for identifying all of the pagers with an additional field for identifying the source pager (column 5, lines 56-65 and lines 32-34), wherein an acknowledgment transmitted by the second communication unit (User's Pager N+1) would have been transmitted to the group address**).

16. The application controller set forth in Claim 11

wherein said prescribed application task is one of a calendering task, an environmental monitoring task, an automation task, and a security task (**application tasks includes calendaring, automation and security, column 7, lines 18-44**).

21. For use with a two-way wireless messaging system, a

method of operating an application controller that is distributed, at least in part, among a plurality communication units associated with said two-way wireless messaging system (**Deluca's Figure 5, wherein an application controller is associated with the distributed functions in the User's Pager 1, Infrastructure and User's Pager N+1 in order to coordinate Deluca's process**),

said application controller being capable of controlling cooperative communication among ones of said plurality of communication units in accordance with a prescribed application task, said method of operation comprising the steps of:

sensing change in a characteristic monitored at a first communication unit, said monitored characteristic evaluated in

accordance with said prescribed application task (**Figure 5, box 620 senses changes in monitored characteristics**);

causing, in response thereto, said first communication unit to transmit automatically a first data signal (**box 630 transmits the first data signal to box 635**);

remotely analyzing said first data signal in accordance with said prescribed application task using at least one subscriber profile, and causing, in response thereto, a second data signal to be communicated automatically to at least a second communication unit (**Deluca's analyzing Box 635 occurs at the first communication unit/User's Pager 1 where the first data signal is received from Box 630. However, it would have been obvious to move the analyzing to the Infrastructure remote from the first communication unit. The reason being that a pager would have limited memory because of its size and the Infrastructure would have unlimited memory, wherein the analyzing function consumes a large amount of memory as taught by Deluca in column 7, line 51 to column 8, line 5**);

automatically analyzing said second data signal at said second communication unit (**box 665 and 675**); and

transmitting, in response thereto, an acknowledgment signal to at least said first communication unit (**Figure 5, box 665 and 675, wherein transmitting an acknowledgment would have been obvious since the pagers are acknowledge back pagers compatible with the Motorola ReFlex Protocol**).

22. The method of operation set forth in Claim 21 wherein said two-way wireless messaging system includes at least one base station and said method of operation comprises a further step of communicating with at least one of said first communication unit and said second communication unit using said base station (**Figure 5**).

25. The method of operation set forth in Claim 21 further comprising the step of communicating automatically said second

data signal to said second communication unit and at least a third communication unit (**Figure 5, Infrastructure 510 transmits the second data signal 655 to a group address, wherein N equals 2 for User's Pager N+1**).

26. The method of operation set forth in Claim 25 further comprising the step of communicating concurrently said second data signal to said second communication unit and said third communication unit (**the group address provides concurrent communication**).
27. The method of operation set forth in Claim 25 further comprising the step of transmitting said acknowledgment signal from said second communication unit to said first communication unit and said third communication unit (**Deluca uses a group address for identifying all of the pagers with an additional field for identifying the source pager (column 5, lines 56-65 and lines 32-34), wherein an acknowledgment transmitted by the second communication unit (User's Pager N+1) would have been transmitted to the group address**).
28. The method of operation set forth in Claim 27 further comprising the step of transmitting concurrently said acknowledgment signal to said first communication unit and said third communication unit (**Figure 5, Infrastructure 510 transmits concurrently to all of the pagers since the pagers have the same group address**).
29. The method of operation set forth in Claim 21 wherein said prescribed application task is one of a calendaring task, an environmental monitoring task, an automation task, and a security task (**application tasks includes calendaring, automation and security, column 7, lines 18-44**).
30. The method of operation set forth in Claim 25 wherein said prescribed application task is one of a calendaring task, an environmental monitoring task, an automation task, and a security task (**application tasks includes calendaring, automation and security, column 7, lines 18-44**).

31. The method of operation set forth in Claim 21 further comprising the step of maintaining said at least one subscriber profile in a data repository associated with said two-way wireless messaging system (**memory in the pager includes the records which provide the subscriber profile, column 7, line 51 to column 8, line 7**).
32. For use with a two-way wireless messaging system, a method of operating an application controller that is distributed, at least in part, among at least three communication units associated with said two-way wireless messaging system (**Deluca's Figure 5, wherein an application controller is associated with the distributed functions in the User's Pager 1, Infrastructure and User's Pager N+1 in order to coordinate Deluca's process**), said application controller being capable of controlling cooperative communication among said at least three communication units in accordance with a prescribed application task, said method of operation comprising the steps of:
  - sensing change in characteristics monitored at a first communication unit using a first communication unit controller, said monitored characteristics evaluated in accordance with said prescribed application task (**Box 620**);
    - automatically causing, in response to one of said monitored characteristics exceeding an associated threshold, said first communication unit to transmit a first data signal (**Box 630**);
      - analyzing said first data signal in accordance with said prescribed application task using an operations controller in association with a subscriber profile, and, in response thereto, causing a second data signal to be communicated automatically to at least a second communication unit and a third communication unit (**Box 635 and User's Pager N+1 where N equals 2**); and
        - automatically analyzing said second data signal at each of said second communication unit and said third communication

unit using a communication unit controller, and, in response thereto, transmitting an acknowledgment signal to at least said first communication unit (**Figure 5, box 665 and 675, wherein transmitting an acknowledgment would have been obvious since the pagers are acknowledge back pagers compatible with the Motorola ReFlex Protocol**).

33. The method of operation set forth in Claim 32 wherein said two-way wireless messaging system includes at least one base station, and said method of operation further comprises the step of communicating with at least one of said at least three communication units using said base station (**Figure 5**).

35. The method of operation set forth in Claim 32 further comprising the step of communicating said second data signal concurrently to said second communication unit and said third communication unit (**group address used in the second data signal 655**).

36. The method of operation set forth in Claim 32 further comprising the step of transmitting said acknowledgment signal from said second communication unit to said first communication unit and said third communication unit (**Deluca uses a group address for identifying all of the pagers with an additional field for identifying the source pager (column 5, lines 56-65 and lines 32-34), wherein an acknowledgment transmitted by the second communication unit (User's Pager N+1) would have been transmitted to the group address**).

37. The method of operation set forth in Claim 32 wherein said prescribed application task is one of a calendering task, an environmental monitoring task, an automation task, and a security task (**application tasks includes calendaring, automation and security, column 7, lines 18-44**).

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5. Claims 3, 13, 17-19, 23, 24, 34 and 38-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deluca et al. and applicant's admitted prior art as applied to the claims above, and further in view of Johannisson et al. (US 6282434 B1).

Deluca does not teach the antenna structure of the base station. Johannisson teaches an antenna structure that reduces interference by providing different uplink and downlink tilt angles. A skilled artisan would have been motivated to implement prior art antenna structures that reduced interference. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide Johannisson's antenna structure into Deluca's teachings in order to reduce interference.

With respect to the claims, references to the prior art patents appear in parenthesis.

3. The application controller set forth in Claim 2 wherein said at least one base station (**Johannisson's Figures 4-6**) comprises:

a transmitter that is capable of transmitting messages in a forward-channel having a first frequency range (**Johannisson uses frequency channels (column 3, lines 48-55), wherein the forward channel/downlink inherently has a first frequency range different from the reverse channel/uplink second frequency range in order to avoid interference between transmitting and receiving; Figures 5 and 6 shows the transmitter 500, 600**);

a receiver that is capable of receiving messages in a reverse-channel having a second frequency range (**Figures 5 and 6 shows the receiver 590, 690**); and

an antenna that is capable of transmitting said forward-channel messages at a first angle of electrical downtilt below horizon and receiving said reverse-channel messages at a second angle of electrical downtilt, wherein said second angle

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of electrical downtilt is less than said first angle of electrical downtilt (**reverse-channel/uplink downtilt angle is less than the forward-channel/downlink downtilt angle as shown by the uplink coverage being closer to the horizon than the downlink coverage**).

13. The application controller set forth in Claim 12

wherein said at least one base station (**Johannisson's Figures 4-6**) comprises:

a transmitter that is capable of transmitting messages in a forward-channel having a first frequency range (500, 600);

a receiver that is capable of receiving messages in a reverse-channel having a second frequency range (590, 690); and

an antenna that is capable of transmitting said forward-channel messages at a first angle of electrical downtilt below horizon and receiving said reverse-channel messages at a second angle of electrical downtilt, wherein said second angle of electrical downtilt is less than said first angle of electrical downtilt (**Figure 4**).

17. The application controller set forth in Claim 13

wherein said two-way wireless messaging system includes at least

one gateway that enables at least one of said at least three

communication units to communicate over said two-way wireless

messaging system using a computer network (**Deluca, column 4, lines 8-48, especially 22-27**).

18. The application controller set forth in Claim 17

wherein said computer network is one of an intra network and the

Internet (**Deluca teaches that the computer network can be "a computer-type device coupled to the PSTN in a manner well known in the art."** The examiner interprets the Internet to include the computer-type device coupled to the PSTN).

19. The application controller set forth in Claim 11

wherein said two-way wireless messaging system includes at least

two antennas, each capable of transmitting forward-channel

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messages at a first angle of electrical downtilt below horizon and receiving reverse-channel messages at a second angle of electrical downtilt, wherein said second angles of electrical downtilt are respectively less than said first angles of electrical downtilt (**Johannisson's Figure 4**).

23. The method of operation set forth in Claim 22 wherein said at least one base station comprises an antenna, and said method of operation comprises the steps of:

transmitting forward-channel messages from said antenna at a first angle of electrical downtilt below horizon; and

receiving reverse-channel messages at said antenna at a second angle of electrical downtilt, wherein said second angle of electrical downtilt is less than said first angle of electrical downtilt (**Johannisson's Figure 4**).

24. The method of operation set forth in Claim 21 wherein said two-way wireless messaging system includes two antennas, each antenna capable of transmitting forward-channel messages at a first angle of electrical downtilt below horizon and receiving reverse-channel messages at a second angle of electrical downtilt, said second angles of electrical downtilt are respectively less than said first angles of electrical downtilt (**Johannisson's Figure 4**), said method of operation comprising the steps of:

receiving at one of said first communication unit and said second communication unit forward-channel messages from a first antenna;

transmitting from said one of said first communication unit and said second communication unit reverse-channel messages to a second antenna; and

controlling communication with said one of said first communication unit and said second communication unit using said

two antennas cooperatively (**obvious combination of Deluca with Johannisson**).

34. The method of operation set forth in Claim 33 wherein said at least one base station comprises an antenna, and said method of operation comprises the steps of:

transmitting forward-channel messages from said antenna at a first angle of electrical downtilt below horizon; and

receiving reverse-channel messages at said antenna at a second angle of electrical downtilt, wherein said second angle of electrical downtilt is less than said first angle of electrical downtilt (**Johannisson's Figure 4**).

38. The method of operation set forth in Claim 34 wherein said two-way wireless messaging system includes at least one gateway, and said method of operation further comprises the step of using said at least one gateway to enable at least one of said at least three communication units to communicate over said two-way wireless messaging system using a computer network (**Deluca, column 4, lines 8-48, especially 22-27**).

39. The method of operation set forth in Claim 38 wherein said computer network is one of an intra network and the Internet (**Deluca teaches that the computer network can be "a computer-type device coupled to the PSTN in a manner well known in the art."** The examiner interprets the Internet to include the computer-type device coupled to the PSTN).

40. The method of operation set forth in Claim 32 wherein said two-way wireless messaging system includes two antennas, each antenna capable of transmitting forward-channel messages at a first angle of electrical downtilt below horizon and receiving reverse-channel messages at a second angle of electrical downtilt, said second angles of electrical downtilt are respectively less than said first angles of electrical downtilt (**Johannisson's Figure 4**), said method of operation comprising the steps of:

receiving at one of said three communication units forward-channel messages from a first antenna; transmitting from said one of said three communication units reverse-channel messages to a second antenna; and controlling communication with said one of said three communication units using said two antennas cooperatively (**obvious combination of Deluca with Johannisson**).

6. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Deluca et al., applicant's admitted prior art, and Johannisson et al. as applied to claim 19 above, and further in view of Ayerst et al. (US 5712624 A).

Deluca and Johannisson do not teach that the reverse channel/uplink channel interleaves messages. Ayerst teaches that the reverse channel/uplink channel interleaves messages (Figure 3; and column 3, line 66 to column 9, line 6, and column 9, lines 36-44). A skilled artisan would have been motivated to adopt prior art reverse channel protocols because of Deluca's and Johannisson's lack of specificity with regards to the reverse channel. Therefore, it would have been obvious to combine the interleaving of the messages in the reverse channel in order to provide a reverse channel protocol into the obvious combination of Deluca, applicant's admitted prior art and Johannisson.

With respect to the claim, references to the prior art appear in parenthesis.

20. The application controller set forth in Claim 19 wherein at least one of said at least three communication units is receiving forward-channel messages from a first one of said

two antennas (**Johannisson's downlink antenna in Figure 4**) while transmitting interleaved reverse-channel messages (**Ayerst's interleaved reverse channel messages in Figure 3**) to a second one of said two antennas (**Johannisson's uplink antenna in Figure 4**), and said operations controller controls communication with said at least one of said communication units using said two antennas cooperatively.

### **Conclusion**

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Davis (US 5153582 A) teaches an Acknowledgment Back pager and Johnson et al. (US 2002/0041238 A1) teaches a combination pager monitor for environmental tasks that is compatible to the Motorola ReFlex protocol (Figure 2 and page 2, paragraph 0038).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melvin Marcelo whose telephone number is 703-305-4373. The examiner can normally be reached on Monday-Friday, 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on 703-308-5340. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4700.

  
Melvin Marcelo  
Primary Examiner  
Art Unit 2663

81-Q0-2004